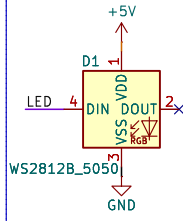
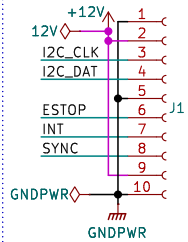


# Core Slice Components

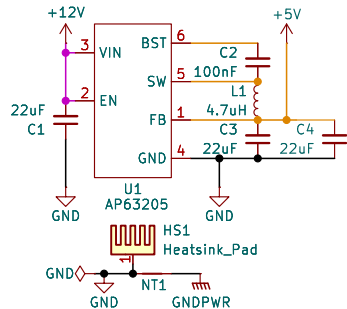
## RGB LED



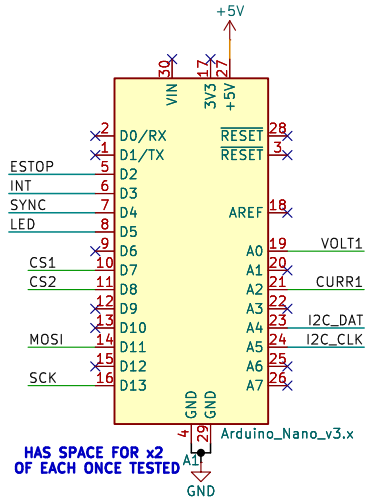
## Backplane Conn.



## 5V Switching Supply

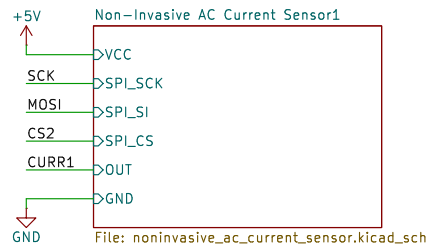
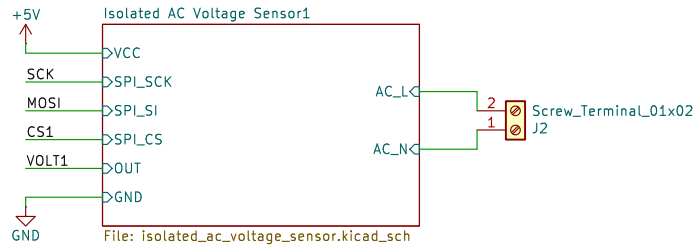
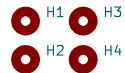


## Arduino Nano



HAS SPACE FOR x2 OF EACH ONCE TESTED

### Mounting Holes



Sheet: /  
File: BREAD\_Slice.kicad\_sch

### Title:

Size: A4  
KiCad E.D.A. 9.0.7

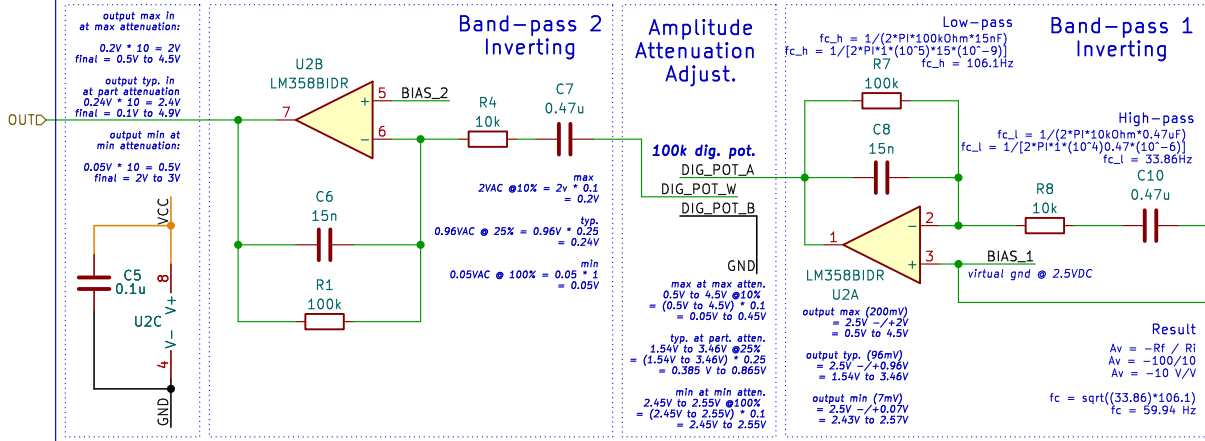
Date:

Rev:

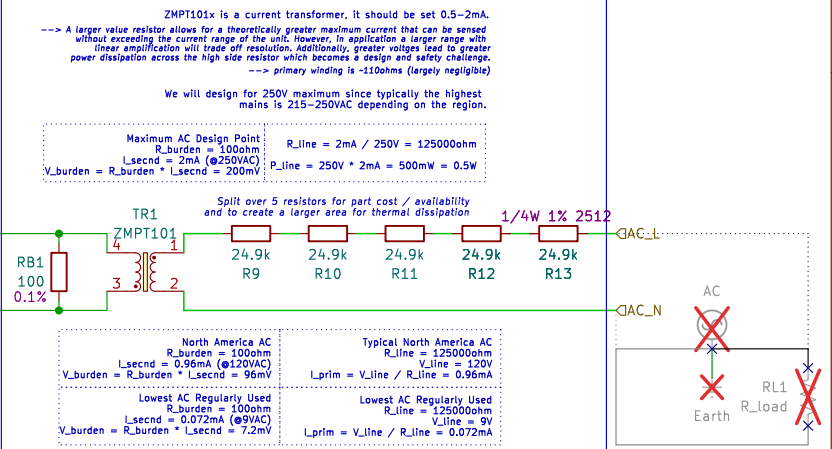
Id: 1/3

# Isolated AC Voltage Sensor – Analog Output

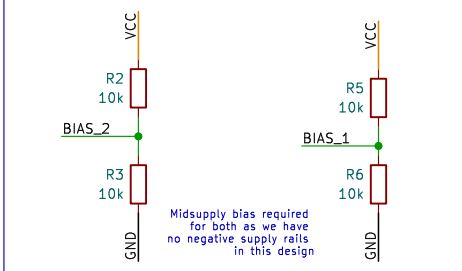
## Two-stage Band-pass Amplifier



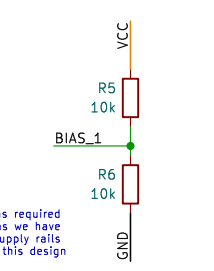
## Step-Down Isolation Transformer



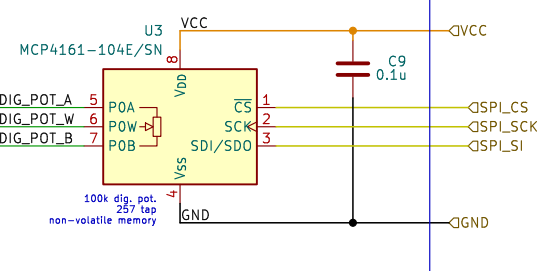
## Voltage Divider Midsupply Bias 2



## Voltage Divider Midsupply Bias 1

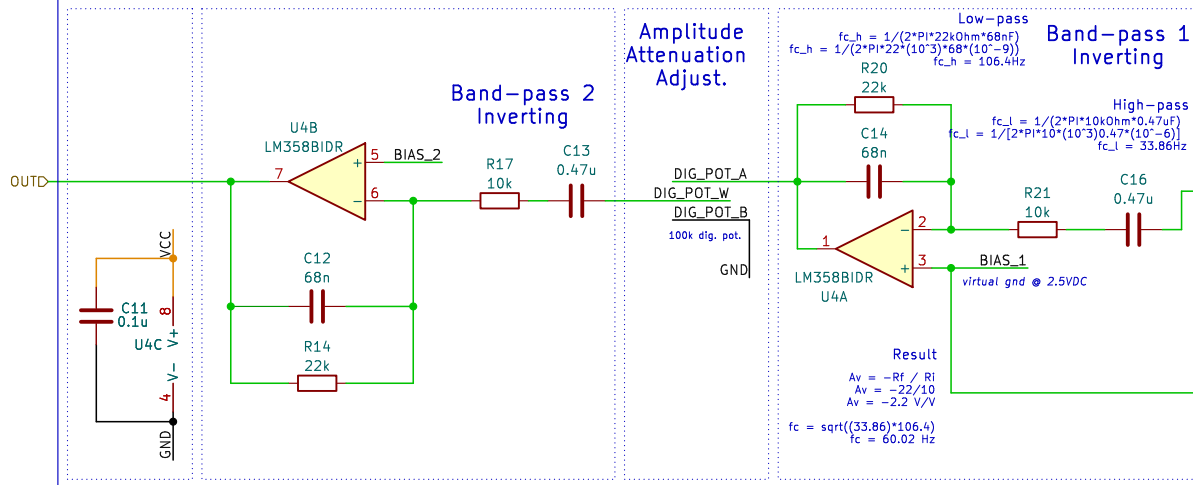


## Digital Potentiometer Gain Adjustment



# Non-Invasive AC Current Sensor – Analog Output

## Two-stage Band-pass Amplifier

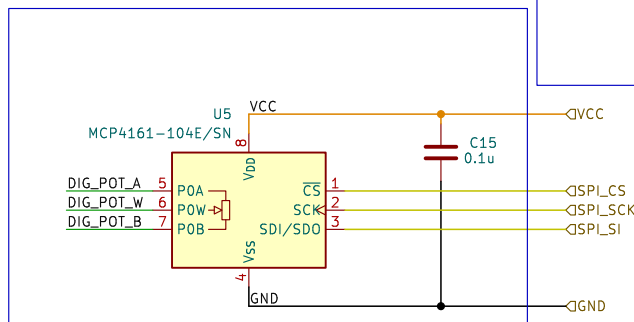
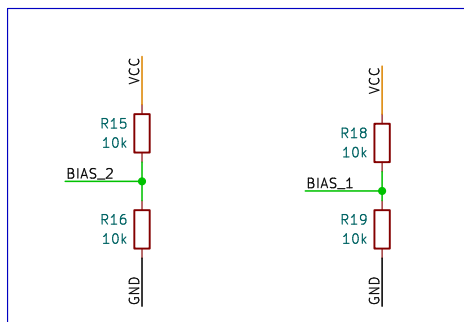
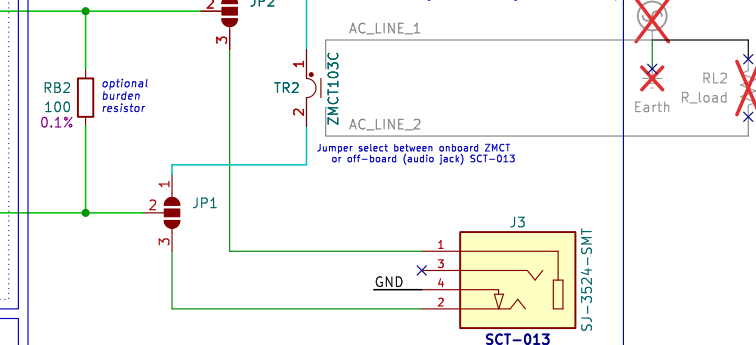


## Non-Invasive Current Transformer

-ZMCT103C is a N.I.S.C. current transformer 0-10A with 5mA @ 5A (1:1000 ratio).  
 -ZMCT103D is a N.I.S.C. current transformer 0-10A with internal resistance of 150R and 2.5mA @ 5A (1:2000 ratio) resulting in 375mV.  
 -SCT-013-xxx is a family of N.I.S.C. current transformer from 5A to 100A max.  
 - xxx signifies its maximum current i.e. 010 is 10A and 000 is 100A  
 - xxx=000 is a current type output from 0-5mA w/ built-in TVS diode  
 - all others are voltage type output from 0-1V  
 \*N.I.S.C. = non-invasive split-core

-ZMCT103C: 0 to 10A maps to 0 to 10mA w/ 100ohm burden resistor results in 0 to 1000mV  
 -ZMCT103D: results in 0 to 375mV  
 -SCT-013-000: 0 to 100A maps to 0 to 5mA w/ 100ohm burden resistor results in 0 to 500mV  
 -SCT-013-xxx: (except xxx=000) result in 0 to 1000mV

\*NOTE: this means we cannot amplify this first stage more than 2.5, we should set around 2.0-2.3 to maximize amplification potential for smaller signals without risking saturation of the amp.



Sheet: /Non-Invasive AC Current Sensor1/  
 File: noninvasive\_ac\_current\_sensor.kicad\_sch

**Title:**

Size: A4

Date:

KiCad E.D.A. 9.0.7

**Rev:**

Id: 3/3